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Comments on Some Kohlerias Cultivated in the United States

H. E. Moore, Jr.

One of the problems confronting the gesneriad fancier is whether to use the generic name Kohleria or Isoloma for some of his most attractive species and hybrids. Within the past five years both names have been used in manuals and dictionaries dealing with cultivated plants. Kohleria was used in Bailey's "Manual of Cultivated Plants" (1949) and the reasons for doing so were summarized by Lawrence in "Gentes Herbarum" 8: 67 (1949). Isoloma was used by Chittenden in "The Royal Horticultural Society Dictionary of Gardening" (1951) and more recently has appeared in articles written for horticultural magazines. Kohleria is the correct generic name and an account of the reasons for using this name and of some of the cultivated species follows.

In 1894, Karl Fritsch, an Austrian botanist who wrote the treatment of the Gesneriaceæ for Engler & Prantl's "Die Natürlichen Pflanzenfamilien" IV, 3b, used the name Kohleria for the genus as it is now accepted. With this name are associated a number of herbs or shrubs belonging in one of the tribes of Gesneriaceæ that have inferior or half-inferior ovaries and scaly rhizomes. The presence of 1-5 separate glands in the disk distinguishes it from Gloxinia, Achimenes and similar genera that have a ring-like disk. From the closely related genera Campanea and Diastema it is distinguished respectively by the generally tubular or only subcampanulate corolla and by its axillary flowers.

Fritsch included in Kohleria species that had formerly been separated under the genera Sciadocalyx and Tydæa and in "Engler's Botanische Jahrbücher" 50: 410 (1913) discussed in detail his reasons for using Kohleria. Since Fritsch's work has been so often neglected, a summary of the reasons is presented here. It should be borne in mind when reading this account that only names for the same category of plant classification - e.g., genus, species, variety - are taken into account when considering the priority of a name.

Kohleria was described as a genus by Eduard Regel in April 1848. Two years earlier, George Bentham, the English botanist, had used the name Isoloma to designate a section or subdivision of the genus Gesneria as he understood it. In December 1848, nine months after Regel had described Kohleria, the French botanist

Decaisne took from Gesneria the several species that Bentham had placed in the section Isoloma and described a separate genus for them using Bentham's name Isoloma and citing Regel's Kohleria as a synonym. Rules of nomenclature were not as well formulated at that time as they are now and whether Decaisne mistakenly thought that Bentham had meant to describe a genus or whether he felt that the earlier name should be recognized we do not know. Kohleria has priority as a name for the genus under the current International Code of Botanical Nomenclature. Even if Isoloma Bentham ex Decaisne had preceded Kohleria, an earlier use of Isoloma by J. Smith for a genus of ferns would make it necessary to reject Decaisne's genus since two different genera of plants cannot bear the same name.

For the reader who wishes to study the complexities of the problem further, the synonyms for Kohleria, as it is presently understood, are listed below. An asterisk indicates names of genera that are now included in Kohleria but which have been prominent in horticultural literature of the past. The genus Moussonia, published in the same place as Kohleria, was later combined with it and the latter name was retained.

Kohleria Regel, Flora 31: 250 (1848) [April].
Gesneria Sect. Isoloma Bentham, Plantæ Hartwegianæ 230 (1846).
Moussonia Regel, in Flora 31: 250 (1848) [April].
* Isoloma Bentham ex Decaisne, in Revue Horticole 20: 465 (1848) [December], not Isoloma J. Smith, in Journal Botany 3: 414 (1841).
* Tydæa Decaisne, in Revue Horticole 20: 468 (1848) [December].
Giesleria Regel, in Flora 32: 181 (1849).
* Sciadocalyx Regel, in Gartenflora 2: 257 (1853).
Brachyloma Hanstein, in Linnæa 26: 203 (1854).
Calycostemma Hanstein, in Linnæa 29: 506, 516, and 556 (1859).
Cryptoloma Hanstein, in Linnæa 29: 506, 534, and 578 (1859).

Key to the cultivated species of Kohleria

[Hybrids are not accounted for in this key. Some generalizations may assist the grower to place plants presumed to be of mixed ancestry. Red-margined velvety leaves are an indication of K. eriantha relationship, bright rose flowers indicate K. amabilis and any appreciable amount of bright yellow on the tube and limb suggests K. bogotensis. K. digitaliflora hybrids usually have large pink-and-white or pink flowers that are densely woolly outside without a noticeable swelling below the throat and with a more regular, finely spotted, green or maroon limb. Hybrids of the remaining cultivated species are either unknown at present or have not been marketed in the United States].

1. Fls. white with a lavender-violet patch at the throat and base of the lower lobes and a lavender-violet bar across the two upper lobes. . . . . 1. K. sp. (1)

1. Fls. pink and white, rose, brick-red, or orange-red, usually spotted on the lobes.

2. Corolla pink-and-white or rose with red or purple spots on the lobes.

3. Fls. rose, the limb of the same color and marked with red or purple. . . . . 2. K. amabilis

3. Fls. with the corolla-tube pink and white, the green limb finely spotted with purple. . . . . 3. K. digitaliflora

2. Corolla brick-red or orange-red, generally spotted with yellow, black, or white.

4. Fls. 1 to 4 on pedicels twice as long as the fl. or less, in the axils of very small lvs. or bracts and forming a crowded, many-fld. terminal raceme-like infl. . . . . 4. K. spicata

4. Fls. 1 to 4 on pedicels usually more than twice as long as the fl., in the axils of normal or only slightly reduced lvs., not in a raceme-like infl.

5. Lvs. rough and wrinkled above with very short, stiff, appressed hairs. . . . . 5. K. ocellata

5. Lvs. velvety above with soft, erectish hairs.

6. Blades of the lvs. dark green with a conspicuous border of bright-reddish hairs; fls. solitary or usually up to 4 from a short common peduncle, the brick-red tube 3.5-5 cm. long and more or less evenly expanded upward to the throat. . . . . 6. K. eriantha

6. Blades of the lvs. dark green with paler markings along the veins, the margins not bordered with reddish hairs; fls. solitary or paired without a common peduncle, the tube about 2.5 cm. long, red above shading to yellow below, conspicuously swollen on the lower side toward the throat. . . . . 7. K. bogotensis

Not only has confusion surrounded the generic name but mix-ups attend the identification of species and their hybrids as well. The problem of naming hybrids closely associated with the species also arises and, following Article C25(f.) of the International Code of Nomenclature for Cultivated Plants, a convenient way is suggested in subsequent paragraphs for designating them when only one parent is known and neither formula nor "specific" name can be applied. As hybrids of recorded parentage are produced in the future or as the parentage of today's hybrids becomes known, then more precision can be attained and the more exact use of names will be possible.

(1) The species that has been offered as Gesneria Lindenii keys out here. As yet there is no name for it in the genus Kohleria and it will be discussed in a future article when the proper transfer has been made in technical literature.

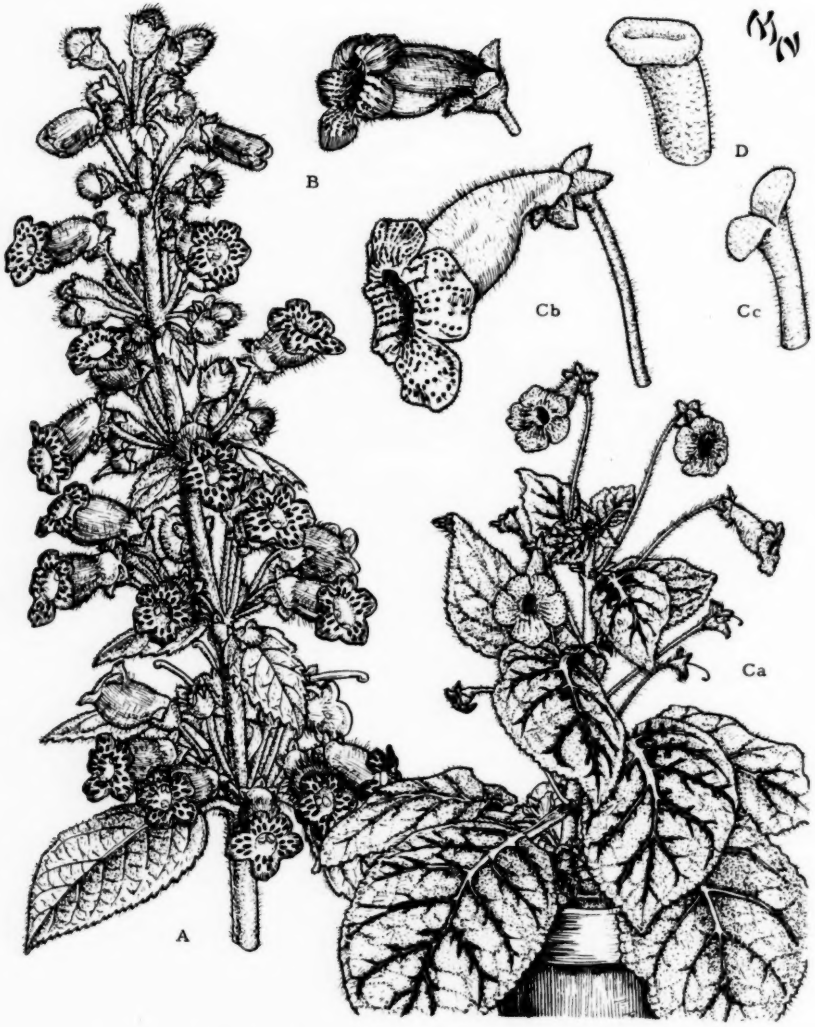

Fig. 48. A, Kohleria Seemannii: habit, x (about) 1 1/2, adapted from "Curtis's Botanical Magazine." B, Kohleria spicata: flower, x 1 1/2. C, Kohleria amabilis: Ca, habit, x 1/3; Cb, flower, x 1 1/3; Cc, stigma, x 4. D, stomatomorphic or mouth-shaped stigma of Gloxinia perennis, x 4.

Kohleria amabilis and Kohleria Seemannii

The correct name of a very handsome species that is rapidly becoming a favorite with collectors is Kohleria amabilis. Plants that should bear this name have been listed as Isoloma amabile and Kohleria Seemannii and under the latter name one has recently been illustrated on page 21 of "The Gloxinian", September-October 1953. To further complicate the matter the name Isoloma Ceciliæ belongs here though the actual plants sold under that name are to be referred to the hybrid group discussed following the species.

Kohleria amabilis is a low-growing species with weak stems that make it a good plant for use in a hanging basket. The leaves are ovate with scalloped margins and with patterns of purplish-brown, and sometimes a marking of silver, about the veins. The upper surface of the blade is darkish green, the under side is a paler green often flushed with red, especially about the protruding network of veins and veinlets. The bright pink flowers copiously dotted with red or purple are 1.8-2.5 cm. long and are borne singly or a few together on long pedicels in the axils of the leaves.

Kohleria Seemannii, on the other hand, is not in cultivation and is a taller, stiffer species with orange-red flowers borne in a terminal raceme-like inflorescence. The leaves are not marked with conspicuous darker veins nor do the veins form a protruding pattern below. For comparison, both species are illustrated in fig. 48.

Tydæa Ceciliæ or Isoloma Ceciliæ was described by André in 1876. Study of the colored plate that accompanied his description, and of the differences he listed in comparing it with Kohleria amabilis, show that it is not distinct. On a well grown plant of Kohleria amabilis in the conservatory at Cornell University one portion of the stem having solitary flowers and red-flushed leaves agreed with Kohleria amabilis, another portion having several flowers together and leaves without a red flush agreed with Isoloma Ceciliæ. Kohleria amabilis, being the older name, is retained for the species and the complete synonymy is listed below.

The plants that are sold today as Isoloma Ceciliæ differ from Kohleria amabilis and appear to be of hybrid origin. The watermelon-pink flowers are larger, with a nearly straight tube and the darker, firmer leaves lack the characteristic patterning of K. amabilis. They are considered below as a Kohleria 'Amabilis Hybrid.'

Kohleria amabilis (Planchon & Linden) Fritsch, in Engler's Botanische Jahrbücher 50: 413 (1913).

Tydæa amabilis Planchon & Linden, Catalogue 1855 and in Flore des Serres 10: 23, t. 1070 (1855).

Tydæa Ceciliæ André, in Illustration Horticole 23: 178, t. 250 (1876).

Isoloma bogotense Nicholson var. amabile (Planchon & Linden) Voss ex Siebert & Voss, Vilmorin's Blumengärtnerei 1: 793 (1894).

Isoloma amabile (Planchon & Linden) Hort. ex Bellair & St.-Léger, Les Plantes des Serres 951 (1899).
Isoloma Ceciliæ (André) Hort. ex Bellair & St.-Léger, Les Plantes des Serres 952 (1899).

Hybrids

A series of hybrids derived from Kohleria amabilis as a maternal parent is illustrated in "L'Illustration Horticole" 5:t. 160 (1858) and 6: t. 198 (1859). The paternal parent or parents were not given although Lemaire suggested as possibilities other species of Kohleria that were formerly referred to Tydæa and perhaps Smithiantha zebrina. The latter conjecture can be accepted only with considerable doubt. To these hybrids may be added Kohleria 'Venosa' figured in "Horticulteur Francais," series 2, 3: 248, t. 20 (1861) and Kohleria 'Formosa' and Kohleria 'Insignis' of the "Floral Magazine" 1: t. 11 (1861). The plants now offered as Isoloma Ceciliæ are rather similar to the last three and apparently belong to this hybrid complex for which the following designation may be used.

Kohleria 'Amabilis Hybrids'

These hybrids are similar to and derived from Kohleria amabilis, differing from the species primarily in the infusion of yellow, white, or deep red in the corolla and in the less prominent patterning of deep green about the veins of the leaves.

Material cultivated in the United States today and referred to above as Kohleria amabilis may be of this alliance, as the pollen appears to be sterile, but the plants resemble the species so closely that for lack of other evidence they are considered with it.

At least seven named clones of a century ago and probably others still extant may be assigned here. They are Kohleria (Amabilis Hybrid) cl. 'Duc de Brabant', cl. 'Duchesse de Brabant', cl. 'Comte de Flandre' and cl. 'Princesse Charlotte', all named for children of the royal family of Belgium, in "L'Illustration Horticole" for 1858, and cl. 'Princesse Troubetzkoy', cl. 'Grandis', and cl. 'Sanguinea' in the same journal for 1859.

As other clones now in existence are determined to be of this alliance or as new clones enter cultivation without precise information as to parentage but obviously derived from Kohleria amabilis, they may be assigned here with an appropriate clonal name when such seems desirable.

Kohleria bogotensis and Kohleria tubiflora

A commonly offered species of Kohleria is K. bogotensis, which usually appears in lists as Isoloma pictum or Kohleria picta. The last two names, however, belong not to Kohleria bogotensis but to quite another species, K. tubiflora, that is not known to be cultivated in the United States. Two different gesneriads were given the

name "picta" and were later found to belong to the same genus, Kohleria. Only one of these can rightfully retain the name Kohleria picta and, unfortunately for the horticulturist, Kohleria picta was first applied to the species that is not in cultivation. In his treatment of Gesneriaceæ for Standley's "Flora of Costa Rica", C. V. Morton considered Kohleria picta synonymous with Kohleria tubiflora. A new name was needed for the cultivated species and this was provided in 1885 by George Nicholson, editor of "The Illustrated Dictionary of Gardening", when he called it Isoloma bogotense. On transfer to Kohleria, this name becomes Kohleria bogotensis and further confusion may be avoided if plantsmen will take it up.

Kohleria bogotensis is similar in habit to K. amabilis and like it has a patterning about the veins of the leaf. In K. bogotensis the pattern is of pale green or white and the blade sometimes has a brownish tinge when old. The flowers are about 2.5 cm. long, red above shading to yellow below with the two upper lobes red marked with darker red, and three lower yellow spotted and lined with red. The tube is noticeably swollen below the throat on the lower side.

Kohleria tubiflora is more robust and has leaves without a distinct pattern. The slender cylindric scarlet flowers are about 2.5 cm. long with very short lobes scarcely 2 mm. long and are strikingly different from those of K. bogotensis as the accompanying illustration (fig. 49) will show.

Readers wishing to follow the intricate problem of nomenclature may consult the synonymy listed below for the two species. Only pertinent synonyms are given for K. tubiflora.

Kohleria bogotensis (Nicholson) Fritsch, in Engler & Prantl, Die Natürlichen Pflanzenfamilien IV, 3b: 178 (1894).
Achimenes picta Bentham, in Curtis' Botanical Magazine 70: t. 4126 (1844), not Kohleria picta (Hooker) Hanstein, in Linnæa 34: 442 (1865).
Tydæa picta (Bentham) Decaisne, in Revue Horticole 20: 468 (1848).
Diastema picta (Bentham) Regel, in Flora 31: 250 (1848).
Giesleria picta (Bentham) Regel, in Flora 32: 182 (1849).
Isoloma bogotense Nicholson, The Illustrated Dictionary of Gardening 2: 201 (1885).
Isoloma Tydæa Bailey, Cyclopedia of American Horticulture 2: 836 (1901).

Kohleria tubiflora (Cavanilles) Hanstein, in Linnæa 34: 442 (1865).
Gesneria tubiflora Cavanilles, Icones et descriptiones Plantarum. . . . 6: 61 (1801).
Gesneria picta Hooker, in Botanical Magazine 75: t. 4431 (1849).
Isoloma pictum (Hooker) Decaisne ex Planchon, in Flore des Serres 6: 165, t. 586 (1850-51).
Kohleria picta (Hooker) Hanstein, in Linnæa 34: 442 (1865).

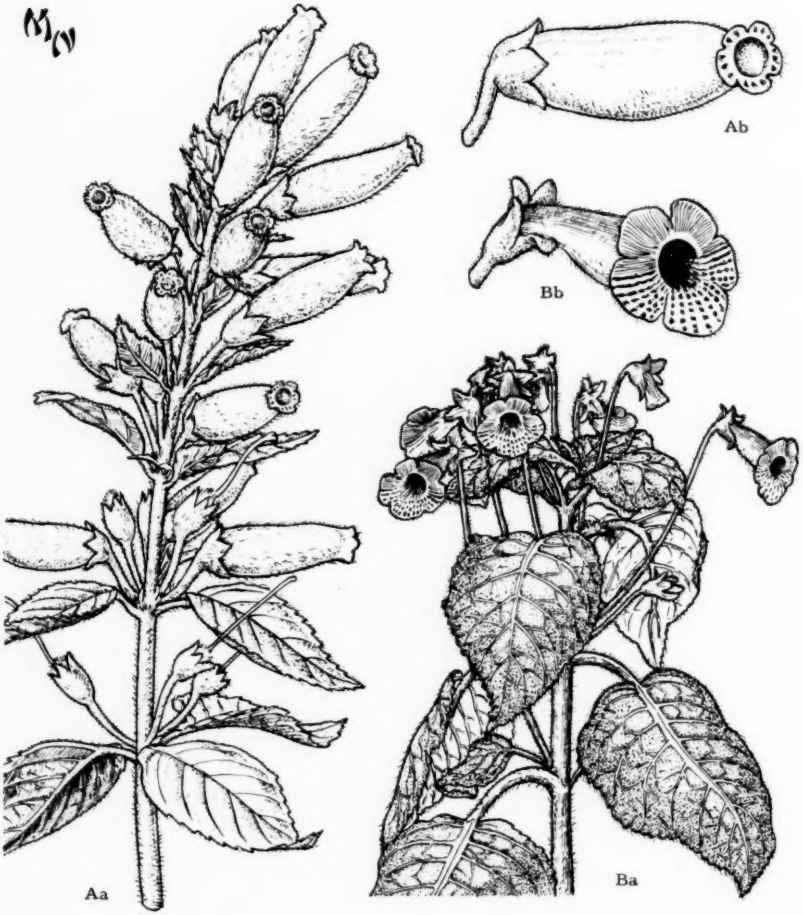

Fig. 49. A, Kohleria tubiflora: Aa, habit, x (about) 1, and Ab, flower, x (about) 1 1/3, adapted from "Curtis's Botanical Magazine." B, Kohleria bogotensis: Ba, habit, x (about) 1/2, and Bb, flower, x (about) 1 1/3, adapted from "Curtis's Botanical Magazine."

Hybrids

Kohleria bogotensis has been very much used in the production of hybrids. Many of the crosses have been recorded, described, and named in the past. These known crosses will be discussed in a later article. For those clones clearly derived from this species, but with the second parent unknown, the following designation may be used.

Kohleria 'Bogotensis Hybrids'

These hybrids are similar to and derived from Kohleria bogotensis but with the second parent unknown, differing principally in the less clearly marked zones of red and yellow in the flowers and in the more slender leaves lacking pale veins and often flushed with a brownish tinge.

Some if not most of the cultivated plants seen in the United States belong here rather than to the species proper.

Kohleria digitaliflora and its hybrids

A rarely grown but striking species of Kohleria is K. digitaliflora. It has not been listed by dealers in the United States but plants that agree well with the species have been grown in the conservatory at Garfield Park, Chicago, Illinois. Though still rare, hybrids having Kohleria digitaliflora or its red-flowered close relative, Kohleria Warscewiczii, as one parent are more frequently cultivated. Because of the rather stout habit these plants are generally grown as pot subjects and are rewarding for both the large attractive flowers and the softly colored and textured foliage.

Kohleria digitaliflora has densely long-hairy stems to 6 dm. high or more. The elliptic-lanceolate or elliptic-ovate leaves are softly hairy and uniform green above, paler and densely woolly below. From 1 to 5 or 6 or more flowers are borne on short pedicels from a long hairy common peduncle in the axils of upper leaves. One of the distinguishing characters is the woolly calyx which has broad lobes about 6 mm. long that spread outward and backward like a parasol. The hairy corollas are 2.5-3.2 cm. long, only slightly swollen, with a rose and white tube, and a green limb finely spotted with purple.

Kohleria digitaliflora (Linden & André) Fritsch, in Engler & Prantl, Die Natürlichen Pflanzenfamilien IV, 3b: 178 (1894).

Sciadocalyx digitaliflora Linden & André, in L'Illustration Horticole 17: 95, t. 17 (1870).

Isoloma digitaliflorum (Linden & André) Hort. ex Bellair & St.-Léger, Plantes des Serres 952 (1899).

Hybrids

As mentioned above, Kohleria digitaliflora and Kohleria Warscewiczii are very similar and when crossed with species of Kohleria belonging to the section Tydæa their hybrid progeny is diffi-

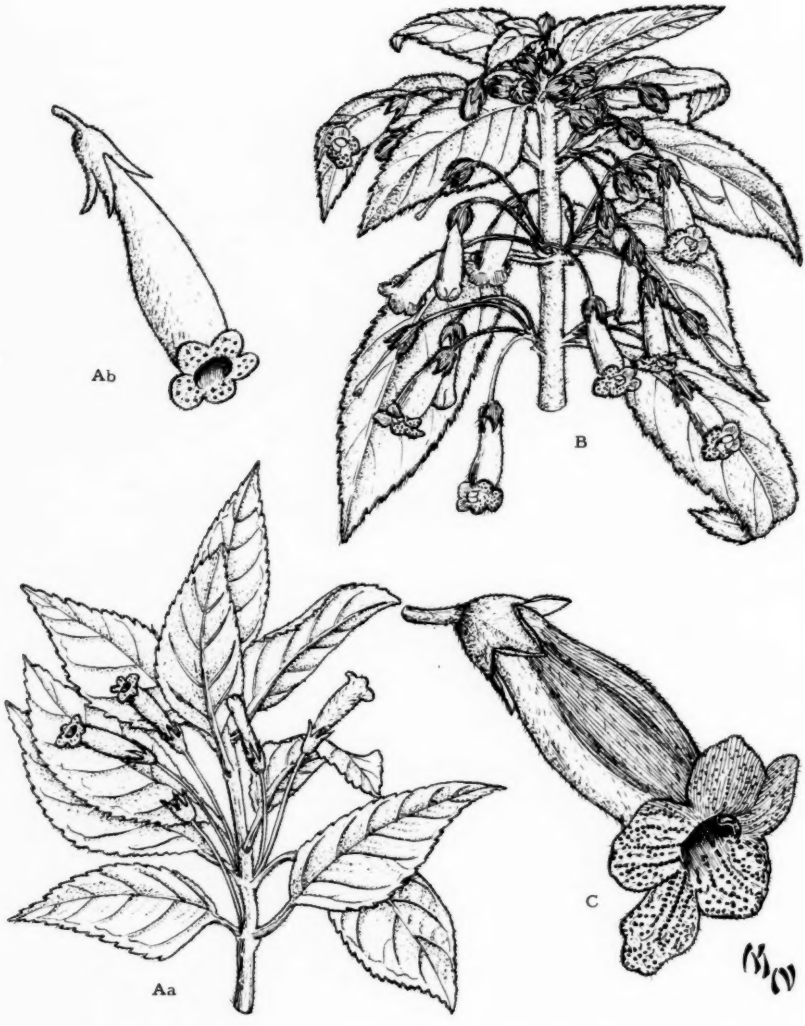

Fig. 50. A, Kohleria hirsuta: A, habit, x 1/3; Ab, flower, x 1 1/3. B, Kohleria eriantha: habit, x 1/3, adapted from "Curtis's Botanical Magazine." C, Kohleria 'Eriantha Hybrid': flower, x 1 1/3.

cult to relate satisfactorily to one or the other of the two species. The hybrids do, however, retain the essential habit of these parents and may be grouped in a class called here 'Sciadotydæa Hybrids'. The name (pronounced sigh-add-oh-tie-dee´-a) includes parts of the names Sciadocalyx and Tydæa by which parental species were formerly known and it appeared in a more restricted sense in "Gardeners' Chronicle" ser. 3, 67: 65 (1920).

Kohleria 'Sciadotydæa Hybrids' resemble the two named parents in the stout habit, often many flowers and long, rather slender, hairy corolla-tubes. The calyx is generally intermediate between the parasol-like calyx of the named parents and the spreading but smaller calyx of section Tydæa. Rose, violet, or red color predominates in the corolla-tube and the limb may be green with purple spots or rose variously marked with maroon or blackish dots, lines, and patches, or sometimes nearly wholly maroon.

At least two of the 'Sciadotydæa Hybrids' are grown in the United States. Mr. R. G. Wilson of Fantastic Gardens, South Miami, Florida, has offered one with a pink corolla-tube and deep maroon limb much like the old and once very popular clones 'Robert-le-Diable' and 'Belzebuth' that were illustrated in "Flore des Serres" 18: t. 1903 (1869-70) and 21: t. 2161-62 (1875). Another may be found bearing the name Isoloma 'William' and is more like Kohleria digitaliflora, having the green and purple spotted limb but a deep rose-violet tube.

Kohleria eriantha and Kohleria hirsuta

Kohleria eriantha, along with its improved forms or hybrids, is frequently grown in the United States where it is usually identified as Isoloma hirsutum or more rarely as Isoloma amabile. The mix-up in names goes back to 1875 when a Mr. Shuttleworth is said to have collected the species in Colombia and sent it to William Bull, a plantsman in Chelsea, London, England. There it was mistakenly called Isoloma hirsutum, a name that has since followed the species and its derivatives in most horticultural literature. As Col. R. H. Beddome noted in "The Journal of the Royal Horticultural Society" 33: 92 (1908), the true Kohleria hirsuta has apparently never been cultivated in England nor is there any evidence that it has been grown elsewhere. For comparison, the two species are illustrated in fig. 50 .

Kohleria eriantha is a rather robust species with tall, more or less erect, densely woolly stems and asymmetric dark green hairy leaves bordered with prominent red hairs along the closely toothed margin. The woolly orange-red flowers are usually borne 3 or 4 together from a short common peduncle in the leaf-axils but are sometimes solitary on the same plant. In contrast to K. hirsuta, the corolla is 3.5-5 cm. long, about 9 mm. wide with lobes 6 mm. long and the calyx-lobes are nearly triangular.

Kohleria hirsuta is a native of Venezuela and Trinidad, resem-

bling K. eriantha in habit but with generally solitary or paired flowers that have a slender tube 2.5-2.8 cm. long and 6 mm. wide. The limb has very short lobes 3 mm. long or less and the linear-lanceolate calyx-lobes are about 6 mm. long.

Kohleria eriantha (Bentham) Hanstein, in Linnæa 34: 442 (1865).
Gesneria eriantha Bentham, Plantæ Hartwegianæ 228 (1846).
Isoloma erianthum Bentham ex Decaisne, in Revue Horticole 20: 465 (1848).
Kohleria hirsuta and Isoloma hirsutum Hort., not Kohleria hirsuta (H. B. K.) Regel, in Flora 31: 250 (1848).

Hybrids

In the years since Kohleria eriantha was first introduced to cultivation it has been improved and hybridized so that it is only the exceptional plant that closely resembles the original type. Col. Beddome, in the article cited above, said that at that time many hybrids were advertised by establishments on the Continent. One instance illustrating the complex nature of these hybrids is found in Möllers "Deutsche Gärtner-Zeitung" 35: 208 (1920) where hybrid plants similar to those cultivated in the United States were given the cumbersome name Isoloma hirsutum multiflorum hybridum. This name violates principles of nomenclature and should not be used. The parents were said to have been Isoloma hirsutum multiflorum and Tydæa hybrida grandiflora. The former was probably a floriferous form of Kohleria eriantha, the latter probably one of the forms of the old hybrid Kohleria x gigantea (Planchon) Fritsch [K. bogotensis x K. Warscewiczii]. The product of this cross was illustrated with photographs in the article cited above, and a similar plant is shown in "The Gloxinian" Sept.-Oct. 1953, where it is called Isoloma hirsutum. How many similar infusions of characters from other species have occurred is a subject for conjecture. Because Kohleria eriantha is obviously one parent, and because the other or others are unknown, the following designation for these hybrids is proposed.

Kohleria 'Eriantha Hybrids'

These hybrids are derived from and similar to Kohleria eriantha in habit and leaf characters, differing principally in having flowers with a more prominently inflated corolla-tube and a large, spreading, varicolored limb. The lobes of the limb are generally about 9 mm long and 12 mm. wide, the upper two orange-red with darker red spots, the lower three yellow and margined, lined, and spotted with red or orange-red.

No named clones have been located but as especially desirable clones appear they may be given fancy-names. A cultivated Kohleria grown in the Botanic Gardens at Berlin and at Graz was described by Fritsch as a species, Kohleria Straussiana, in "Engler's Botanische Jahrbucher" 54, beiblatt 119: 34 (1916). From the des-

cription it is evident that it is similar to K. eriantha. Its cultivated origin lends support to the supposition that it may represent a hybrid of this assemblage. To determine its status will require an examination of specimens if any have survived the war, and even if it should eventually prove to be an 'Eriantha Hybrid' the name need not supplant the more general term.

Kohleria spicata and Kohleria strigosa.

Plants said to be Kohleria strigosa, a rare species of Costa Rica, have been offered in the trade in recent years. Such material as has been seen bearing this name in cultivation, however, has proved to be either Kohleria spicata (H. B. K.) Oersted, a species very similar to K. Seemannii (fig. 48) and differing only in technical characters of doubtful value, or one of the 'Eriantha Hybrids'.

As far as can be determined, true Kohleria strigosa Morton is not cultivated. It is a shrub with branched stems up to 9 dm. high, obliquely ovate leaves, and bears the flowers in umbels on a short common peduncle in the axils of the leaves in the fashion of Kohleria eriantha. The flowers are about 7 in number on each peduncle and have a tubular scarlet corolla about 2.5 cm. long. Unlike all of the cultivated species of Kohleria which have a two-lobed stigma, Kohleria strigosa has a broadly mouth-shaped stigma (fig. 48D).

Persons having plants labelled K. strigosa may determine whether they have Kohleria spicata or a Kohleria 'Eriantha Hybrid' by comparing them with the illustration of Kohleria Seemannii (fig. 48), which is scarcely distinguishable from K. spicata in general habit, or with fig. 50. If plants agreeing with the brief description of true Kohleria strigosa are found in cultivation, the writer would greatly appreciate having information about them.

The correct name for the spring-flowering bulb more commonly known as Chionodoxa Allenii is x Chionoscilla Allenii, according to the study by Dr. W. B. Turrill, Keeper of the Herbarium, at the Royal Botanic Gardens, Kew (in "Curtis's Botanical Magazine," t. 207, June 1953).

Dr. Turrill accepts Chionodoxa Luciliæ x Scilla bifolia as the parentage of this bigeneric hybrid, noting that progeny of this cross appear to have arisen from time to time in gardens. The generic name Chionoscilla and the combination C. Allenii were made by Nicholson in 1897 (in "The Gardeners' Chronicle", p. 191). The plants may be distinguished from Chionodoxa Luciliæ by the tepals' being basally connate for about 1.5 mm. and by the versatile anthers; from Scilla bifolia by the much longer flower pedicels and by the larger flowers, about 3.0 cm. across.

Selections from the Genus Acanthopanax

Bernard Harkness

Highland Park Herbarium, Rochester, New York

The shrubby Aralias, the genus Acanthopanax, have not aroused very much enthusiasm as ornamental plants, nor is it likely that they will ever have a vogue. Three were introduced about 1860, which gives them ample time to have established their level of horticultural value. Indeed, one of this group is offered by many nurseries. Acanthopanax Sieboldianus, Fiveleaf Aralia, is a Cinderella shrub, well spoken of not for its beauty, but for its usefulness in hedges, barrier plantings, and shaded or otherwise difficult situations. Plants in cultivation in this country appear to be the product of asexual propagation of pistillate material only. Why in this long span of time no one has been curious enough to bring over a staminate plant to see whether fruits would not enhance the ornamental value of Fiveleaf Aralia is a mystery. Another likely embellishment occurs in forma variegatus, which I have never seen. In England it has been grown since 1874 and W. J Bean describes it as having its leaflets edged with a broad border of creamy white. He values it as one of the daintiest of variegated shrubs, which leads one to think it should brighten more shaded corners in our gardens than it now does.

The other two, ninety years after being brought into cultivation, are known mostly from botanical gardens, though a travelling English horticulturist reported in "Gardeners' Chronicle" (Nov. 13, 1897) his finding Acanthopanax sessiliflorus quite handsome in fruit - black globes against leathery, dark green, three-lobed leaves - in the Lemoine nursery at Nancy, France. Currently it is grown at Dropmore, Manitoba by Mr. F. L. Skinner and is listed in his catalog of hardy plants. Acanthopanax senticosus, which is widespread in eastern Asia, is probably too well defended with prickles to be a popular garden plant, especially as it has no redeeming ornamental characteristics.

From Japan, Keya Aralia, Acanthopanax divaricatus, is interesting and distinctive in its round heads of tightly set purple-black fruits with densely brownish-pubescent stalks. From China come the balance of the Acanthopanaxes to be seen here and there in the country in collections. They were brought into cultivation after 1900 by French and English botanical explorers. In "The Araliaceæ

Fig. 51. Acanthopanax Simonii (much reduced).

of China" (Sargentia II, [1942]) Dr. Hui-Lin Li gives an extensive treatment of the species known from China.

The Arnold Arboretum collection of Acanthopanax is probably the most complete in this country; Dr. Wyman notes ten in his "Shrubs and Vines for American Gardens." T H. Everett in 1943 reported eight in the New York Botanical Garden collection. In the Rochester (New York) Parks collection there are seven Of these, Acanthopanax lasiogyne and A. Wardii are vigorous plants growing too tall and wide-spreading for most present-day gardens, though their abundant black fruits and late-hanging leaves are welcome in the November landscape.

The only other species of recent nursery listings is Acanthopanax Henryi offered by Kohankie & Son, Painesville, Ohio. This is one of the coarser-leaved kinds in the palmately 5-lobed pattern. Again, its best asset is its autumn fruiting effect.

In a review of the Rochester collection, some slight advantages seemed to accrue to Acanthopanax Simonii as an ornamental shrub. In the same situation as the taller growing species it stays down to a convenient five feet, though the manuals mention nine in nature. In contrast to the dull twig coloring of other species, Simon Aralia has a warm tan hue, a contribution to the garden in the winter months. The fruits have glossy black coats and are borne loosely in an umbel Its flowers in early August are small and green, yet they offer something irresistable to bees. The prickles it bears on its branches are recurved, lessening greatly their danger. Its leaflets are five in number, or only three near the ends of the branches, but vary in size, with a finer pattern than in most Aralias. Anyone wishing to grow Simon Aralia or some of the others mentioned is welcome to write me at Highland Park Herbarium, 5 Castle Park, Rochester 20, for seeds.

Hosta enthusiasts will be interested to know of a relatively recent treatment by W. T. Stearn in the June 1953 number of "Curtis's Botanical Magazine" of the Autumn-flowering Plantain-lily, for which he accepts the name Hosta tardiflora (Irving) Stearn. In much of the literature the plant has been treated as a variety of Hosta lancifolia, but, as Mr. Stearn has pointed out, it differs from that species in its later blooming period (late September to mid-November), its dwarfer habit, its shorter petioles and scapes with the flowers crowded into the upper 12 cm. or less [the upper 20 cm. in H. lancifolia], and in the thicker leaves.

The plant known as Hosta sparsa Nakai is believed by Stearn to be only a clonal segregate of H. tardiflora and he indicates that even more dwarf clones now cultivated in Japan deserve introduction to western gardens. The reference cited above is provided with a good color plate of H. tardiflora and a very readable account of its botanical and horticultural history.

G. H. M. L.

Keys to Cultivated Plants
2. The Cultivated Species of Lychnis

G. H. M. Lawrence

A check of a score or more of current catalogues provides ample evidence that confusion exists in the identity and nomenclature of plants of Lychnis and related genera. The generic names Silene, Melandrium, Agrostemma, and Viscaria are involved. The genera of this assemblage, accepted in "Hortus III" as taxonomically valid, are Agrostemma, Lychnis, Petrocoptis, and Silene. Their distinguishing characters are summarized in the following key:

1. Styles 3 (fig. 54 Ad). . . . . Silene
1. Styles 4-5.
   2. The styles opposite the petals (fig. 54 Ba). . . . . Agrostemma
   2. The styles alternate with the petals.
      3. Lvs. 1-2 cm. long; petals imbricated (overlapping) within the calyx-tube; seeds bearded at the hilum (fig. 52d). . . . . Petrocoptis
      3. Lvs. mostly 3 cm. long and more; petals spreading or meeting at edges within the calyx-tube, but not imbricated; seeds not bearded (fig. 53d). . . . . Lychnis

Species of Lychnis and Silene bear considerable resemblance to and are frequently confused with one another. The presence of 3 styles on the ovary of Silene (fig. 54A) serves to distinguish species of that genus from Lychnis, in which the ovary bears 4-5 styles.

The genus Petrocoptis was segregated from Lychnis by Braun in 1843. It is a small genus of about 4 species, characterized by the seeds bearing tufted hairs at one end and having a smooth seed-coat (characters not found in species of Lychnis or Silene). The leaves are small and more chick-weed-like but some alpine sorts of Lychnis likewise have small leaves. In Petrocoptis, the

Fig. 52. Petrocoptis Lagascæ: a, habit of plant, x 3/4; b, flower, face view, x 1 1/2; c, petal, x 2; d, seed, x 5.

petals overlap along the margins of the claws (the basal part of the petal, situated within the calyx-tube. Of the 4 species, P. Lagascæ and P. pyrenaica are the most commonly cultivated and continue to be offered by these epithets under the name of Lychnis.

The genus Agrostemma was established by Linnæus who distinguished it from Lychnis by the styles much longer than the stamens. As more species became known, this basis for distinction lost its value. Since the genus has been redefined and distinguished by the characters given above, several species were transferred to Lychnis, and Agrostemma is now held to be a genus of 2 species (one, Agrostemma Githago, the Common Cockle, being a grain-field weed, and sometimes grown as an ornamental).

The generic name Melandrium is encountered in current horticultural and botanical literature, especially in that originating in the British Isles and on the Continent. To this genus have been assigned species placed by other authors in Lychnis or Silene; the genus Melandrium allegedly differs in the capsule's lacking a partial basal septation (partitioning) - a distinction here considered lacking sufficient constancy to characterize a genus. A finding-list of species names at the end of this paper includes those names sometimes treated under Melandrium and indicates whether they are here held to be a Lychnis or Silene.

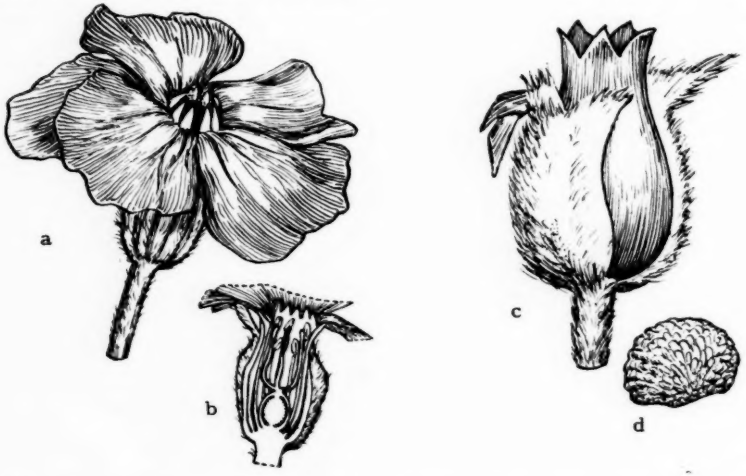

Fig. 53. Lychnis coronaria: a, flower, habit, x 1; b, same, vertical section, less petal limbs, x 1; c, capsule (portion of persistent calyx removed), x 2; d, seed, x 10.

Some species of Lychnis have been segregated by some Europeans as composing the genus Viscaria, but this distinction has never been much adopted in this country, except by a few plantsmen who have grown the species concerned from seed obtained under that generic name from some continental botanical gardens and who have accepted without question the names on the seed packet.

In general, the cultivated species of Lychnis are of easy identification. In some instances the capsules provide the most reliable characters but, in the key below, these are supplemented by other more readily available characters. A few species are dioecious and the plants are either staminate or pistillate. In some, the calyx is inflated at maturity - a character found also in some species of Silene, thereby adding to the confusion between the two genera. Two annual species are cultivated: L. Coeli-rosa and L. corsica. Some species are weedy and may become garden pests, or may add little to the beauty of the garden; these include Lychnis alba (White or Evening Campion), some wild types of L. alpina (Arctic Campion),

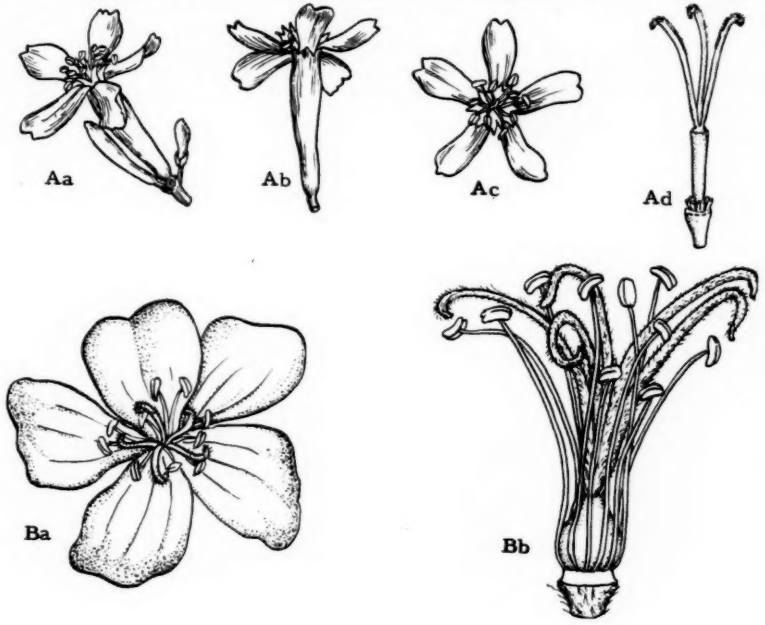

Fig. 54. A, Silene Armeria: Aa, flower, x 1 1/2; Ab, same, side view, x 1 1/2; Ac, same, face view, x 1 1/2; Ad, pistil, x 2. B, Agrostemma Githago: Ba, flower, face view, x 1; Bb, flower, less perianth, x 2.

and L. divaricata a species closely allied to L. alba. Lychnis Coronaria (Mullein-Pink) is showy when in flower but can become a weed, even invading lawn areas.

The key that follows was devised during the course of preparation of the treatment of Lychnis for "Hortus III" (in which no keys will appear) and does not indicate the presence of the appreciable number of cultivars in the genus. Following the key is a list of common names applied to cultivated members of Lychnis, together with the species concerned. A finding list of epithets used for cultivated species and hybrids of it is also provided.

1. Plants white-woolly.
   2. Fls. few to a st., long-pedicelled, magenta. . . . . 1. L. Coronaria
   2. Fls. in dense clusters, short-pedicelled, pink. . . . . 2. L. Flos-Jovis[1]
1. Plants green (herbage may be variously hairy but not woolly nor densely tomentose).
   3. Fls. unisexual or mostly so on any one plant; plants dioecious (fig. 55).
      4. Calyx-teeth sharply acute; petals red; fls. diurnal: caps. globose, wide-mouthed. 3. L. dioica
      4. Calyx-teeth acuminate; petals white; fls. nocturnal: caps. urceolate, narrow-mouthed.
         5. Caps.-teeth recurved: infl. brs. strongly divaricate. . . . . 4. L. divaricata
         5. Caps.-teeth erect or slightly spreading: infl. brs. more or less circinnately cymose, not divaricate (fig.55c). . . . 5. L. alba
   3. Fls. bisexual throughout.
      6. Infl. a dense head, terminal on the fl. brs., the fls. 10 or more in each head.

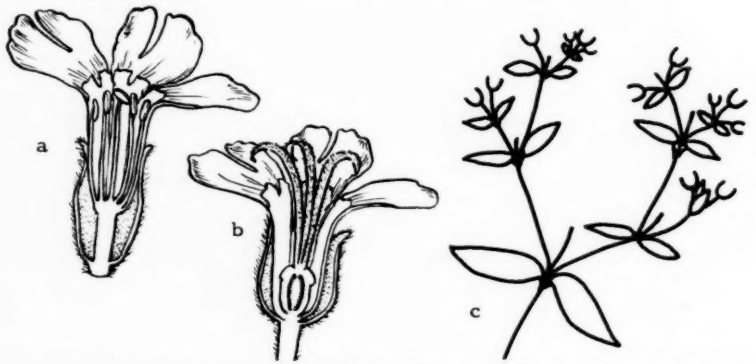

Fig. 55. Lychnis alba: a, staminate flower, vertical section, x 1; b, pistillate flower, vertical section, x 1; c, diagram of inflorescence.

[1] A hybrid between these two species, known in the trade as L. Walkeri, has carmine-red fls.

7. Lvs. linear-lanceolate, mostly basal. . . . . 6. L. alpina

7. Lvs. ovate-oblong to oblong, cauline.

8. The lvs. petioled (at least the lower ones) and decurrent. . . . . 7. L. Preslii

8. The lvs. sessile, not decurrent.

9. Petals 4-lobed; fls. 3.5-7.0 cm. across (fig. 56Bb). . . . . 8. L. fulgens

9. Petals 2-lobed; fls. about 2.5 cm. across (fig. 56Aa).

10. Heads usually of 20-40 fls.; corollas about 2.0 cm. across. 9. L. chalcedonica

10. Heads usually of 5-15 fls.; corollas 0.8-1.4 cm. across. . . . . 10. X L. Arkwrightii

6. Infl. open and diffuse, or paniculate or racemose, not capitate.

11. Petals about as long as calyx; fls. solitary or in 2-3's.

12. Fls. nodding; petals entire to emarginate. . . 11. L. apetala

12. Fls. erect; petals 2-lobed; . . . . . 12. L. montana

11. Petals half again as long as calyx or longer; fls. several to many, not drooping.

13. The petals 2-lobedor 4-lobed.

14. Fls. with petals 4-lobed with linear segms. (fig. 56Bb). . . . . 13. L. Flos-cuculi

14. Fls. with petals 2-lobed, the segms. mostly oblong, oblanceolate, or obovate.

15. Plant per., hairy: fls. white. . . 14. L. yunnanensis

15. Plant ann., glabrous: fls. rose-colored. . . . . 15. L. corsica

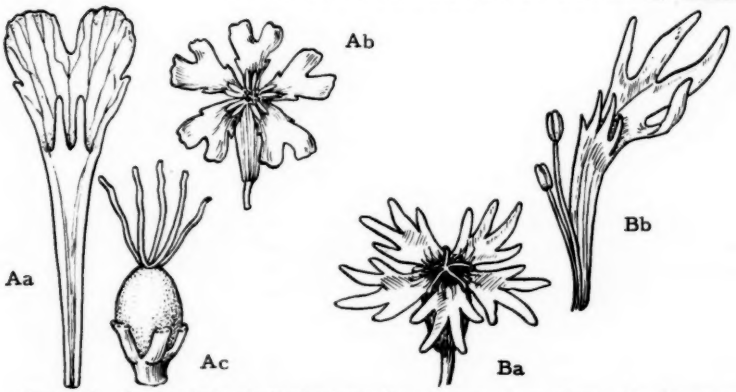

Fig. 56. A, Lychnis chalcedonica: Aa, flower, face view, x 1; Ab, pistil, x 2; Ac, petal, showing the 2 squamellae at base of limb, x 2. B, Lychnis Flos-cuculi, Ba, flower, habit, x 1; Bb, petal with squamellae and 2 attached stamens, x 2.

13. The petals entire, notched, or toothed, not deeply lobed or cleft.
    16. Upper lvs. basally connate. . . . . 16. L. mongolica
    16. Upper lvs. sometimes sessile, but not connate.
        17. Petals toothed.
            18. Plants essentially glabrous.
                19. Fls. brick-red or salmon-colored. . . . . 17. L. coronata
                19. Fls. white. 17a. L. coronata var. Sieboldii
            18. Plants hairy. . . . . 18. X L. Haageana
        17. Petals entire or emarginate (notched).
            20. Pedicels longer than calyx; plants ann.
                21. Plants 1-2.5 dm. high: fls. about 1 cm. across. . . . . 19. L. corsica
                21. Plants 3.5-6 dm. high: fls. about 2.5 cm. across. . . . . 20. L. Coeli-rosa
            20. Pedicels shorter than calyx: plants per.
                22. Fl. sts. much branched; fls. 3.5-7.0 cm. across: lvs. sharply and minutely serrulate. . . . . 21. L. Miqueliana
                22. Fl. sts. unbranched, the infl. racemose; fls. 1-2.5 cm. across: lvs. entire.
                    23. Caps. about as long as its stalk: lvs. linear-lanceolate: calyx 1.0-1.5 cm. long, glabrous; petals obtuse to emarginate. . . . . 22. L. Viscaria
                    23. Caps. much longer than its stalk: lvs. obovate-lanceolate: calyx 0.9-1.0 cm. long, sparsely glandular; petals truncate.
                        24. Petals rose-red, the blade 6-8 mm. long, truncate. 23. L. Sartorii
                        24. Petals purple, the blade 4-5 mm. long, obtuse to emarginate. . . . . 24. L. atropurpurea

In the above key the epithet "Sartorii" is encountered [no. 23 in the key]. The Code of Nomenclature provides that for epithets commemorating a personal name which ends in a vowel or the letter "r" the latinized epithet be terminated by a single "i" when used in the genitive case, and that when the name ends in a consonant other than "r" a double "i" be used. Here, for Lychnis Sartorii, it might seem that a single "i" should be used. However, the species name commemorates that of Franz Sartori, an Austrian botanist who wrote on the plants of Styria about 150 years ago. Latinization of his name in the genitive case results in the epithet "Sartorii."

Finding-list of species and hybrid names applied to cultivated Lychnis. Accepted names are underscored and followed by the sequence number employed in the key above.

Common names used for Lychnis species:

Arctic Campion: L. alpina
Cuckoo-Flower: L Flos-cuculi
Dusty Miller: L. Coronaria
Evening Campion: L. alba
Flower-of-Jove: L. Flos-Jovis
German Catchfly: L. Viscaria
Jerusalem Cross: L. chalcedonica
London-Pride: L. chalcedonica
Maltese Cross: L. chalcedonica
Morning Campion: L. dioica
Mullein-Pink: L. Coronaria
Ragged-Robin: L. Flos-cuculi
Red Campion: L. dioica
Rose Campion: L. Coronaria
Rose-of-Heaven: L. Coeli-rosa
Scarlet Lightning: L. chalcedonica
Scarlet Lychnis: L. chalcedonica
White Campion: L. alba
White Cockle: L. alba

Agrostemma

Coeli-rosa L.: Lychnis Coeli-rosa
Coronaria L.: Lychnis Coronaria
Flos-cuculi (L.) Don: Lychnis Flos-Cuculi
Flos-Jovis L.: Lychnis Flos-Jovis

Lychnis

alba L. 5
alpestris: Silene alpestris
alpina L. 6
apetala L. 11
x Arkwrightii Heydt 10
[L. Haageana x L. chalcedonica]
atropurpurea (Grisebach) Nyman 24
caramanica: probably Silene caramanica
cardinalis: probably L. Coeli-rosa cv. 'Kermesiana'
chalcedonica L. 9
Coeli-rosa (L.) Desrousseaux 20
Coronaria (L.) Desrousseaux 1
coronata Thunberg 17
coronata var. Sieboldii (Van Houtte) Bailey 17a
corsica Loiseleur 15, 19
dioica L. 3
diurna Sibthorp: dioica
divaricata Reichenbach 4
fimbriata Hort: Coeli-rosa cv. 'Fimbriata'
Flos-cuculi L. 13

[cont. on p. 114]

Some Notes on Cultivated Elæocarpaceæ

H. E. Moore, Jr.

In the treatment of the Elæocarpaceæ recently prepared for "Hortus III", several changes in names have been made to conform with results of recent studies and two species, Aristotelia Colensoi Hooker f. and Elæocarpus Hookerianus Raoul Choix, are probably to be dropped since there is no evidence at the Hortorium that they are now cultivated in the United States. The family is a small one, mostly of the tropics, with eight species in four genera occasionally cultivated in warmer parts of the country. These genera and species may be distinguished by the following key.

1. Petals valvate in bud, fls. with a cushion-like disk or androgynophore; fr. a drupe or capsule.
   2. Fr. drupe-like; petals lacerate-fringed at the apex, less than 12 mm. long. . . . . Elæocarpus
      3. Shrub or small tree; brts. nearly glabrous; lvs. prominently serrate with flat margins. . . . . E. reticulatus
      3. Tree to 20 m.; brts. silky-hairy; lvs. linear-obovate, sinuate-serrate, the margins recurved. . . . . E. dentatus
   2. Fr. capsular; petals 3-toothed at the apex, 1.8-2.5 cm. long. . . . . Crinodendron
      4. Fls. red; ovary white-tomentose; lvs. linear-lanceolate. . . . . C. Hookerianum
      4. Fls. white; ovary sparsely hairy; lvs. ovate-lanceolate.
1. Petals strongly imbricate in bud, fls. with a weak disk; fr. a berry.
   5. Lvs. symmetric; ovary 3-4-locular, seeds 2 per locule. . . . C. Patagua
      6. Blades of lvs. leathery, 2.5 cm. long or less. . . . . Aristotelia
      6. Blades of lvs. thin, 7.5-12.5 cm. long.
         7. Fls. greenish, solitary or few in axillary cymes. . . . A. chilensis
         7. Fls. rose, numerous in elongate axillary panicles. . . A. racemosa
   5. Lvs. asymmetric; ovary 5-locular; seeds numerous. . Muntingia Calabura

Aristotelia L'Héritier.

Aristotelia chilensis (Molina) Stuntz is the correct name for the plant previously listed as A. Macqui L'Héritier. The species was first described by Molina in 1782 as Cornus chilensis. Shortly thereafter, in 1784, L'Héritier erected the genus Aristotelia based on A. Macqui. Since it was not known that Cornus chilensis was indeed the same as A. Macqui, the first name was overlooked until 1914 when C. S. Stuntz, realizing that the two were synonymous, transferred the earlier specific epithet to Aristotelia, thus naming the species A. chilensis. This name has been used by workers in Chilean botany for many years but has not been taken up in such horticultural works as "Parey's Blumengärtnerei" (1931) or "The Royal Horticultural Society Dictionary of Gardening" (1951).

Crinodendron Molina

Crinodendron Hookerianum C. Gay [C. lanceolatum Miquel] is the proper name for the plant described under the name C. Patagua Molina in "Hortus Second," while the latter name should be applied to the plant there described as C. dependens (Ruiz & Pavon) Kuntze. This confused state of affairs is due to long misinterpretation of Molina's none too adequate description in his account of the natural history of Chile entitled "Saggio sulla storia naturale del Chile," and published in 1782. During the century and more that followed this work, C. Patagua and a second species each received additional names and were interchanged in usage. In 1938, H. R. Descole and C A. O'Donell discussed the genus in the Argentinian journal "Lilloa" 2: 341-452, elaborating the description of a third species from Argentina not in cultivation and clarifying the status of the Chilean species. Current usage of names is based on this work to which reference may be made for detailed synonymy and discussion.

Elæocarpus Linnæus.

Elæocarpus reticulatus Smith [E. cyaneus Aiton ex Sims] is a shrub or small tree that has long been called E. cyaneus. The last name was published in vol. 12 of Rees' "Encyclopedia" for which B. D. Jackson gives the publication date of June 1809 in an article in "Journal of Botany" 34: 310 (1896). Elæocarpus cyaneus first appeared as a nomen nudum in Aiton's "Epitome to Hortus Kewensis" ed. 2 p. 3 (1814) and was illustrated and fully described by Sims in "Curtis' Botanical Magazine" 40, t. 1747 (1815).

The simple matter of priority was not clear until the date of issue of individual parts of Rees' "Encyclopedia" was worked out by Jackson. Prior to this, the final date of 1819 for letterpress and 1820 for plates was generally accepted and perhaps for that reason E. cyaneus was not displaced.

Cultivated Lychnis [continued from p. 111]

Flos-Jovis (L.) Desrousseaux 2
fulgens Fischer 8
Githago: Agrostemma Githago
grandiflora Jacquin: coronata
x Haageana Lemaire 18
[L. fulgens x L. coronata]
Lagascæ (Willkomm) Hooker: Petrocoptis Lagascæ
macrocarpa Boissier & Reuter: divaricata
Miqueliana Rohrbach 21
mongolica Maximowicz 16
montana Watson 12
oculata Hort.: Coeli-rosa cv. 'Oculata'
parviflora Turczaninow: apetala
Preslii Sekera 7
pyrenaica Bergeret: Petrocoptis pyrenaica
Sartorii (Boissier) Hayek 23
Sieboldii Van Houtte: coronata var. Sieboldii
Vaccaria: Silene Vaccaria
vespertina Sibthorp: alba
Viscaria L. 22
x Walkeri Hort: see footnote[1]
[L. coronaria x L. Flos-Jovis]
yunnanensis Baker 14

Melandrium
album (L.) Garcke: Lychnis alba
californicum (Durand) Rohrbach: Silene californica
dioicum Cosson & Germain: Silene conoidea
Elizabethiæ (Janka) Rohrbach: Silene Elizabethiæ
Hookeri (Nuttall) Rohrbach: Silene Hookeri
laciniatum (Cavanilles) Rohrbach: Silene laciniata
macrocarpum (Boissier & Reuter) Willkomm: Lychnis divaricata
pennsylvanicum Rohrbach: Silene caroliniana var.
rubrum (L.) Garcke: Lychnis dioica
silvestre Roehl: Lychnis dioica

Viscaria
cardinalis Vilmorin: Lychnis Coeli-rosa
oculata Lindley: Lychnis Coeli-rosa cv. 'Oculata'
parviflora Riviere: Lychnis apetala
Sartorii Boissier: Lycnnis Sartorii
viscosa Ascherson: Lychnis Viscaria

Notes on Cultivated Labiates

1. Agastache

Gordon P. DeWolf

In working with the cultivated Labiates we have come upon certain changes in nomenclature and records of species in cultivation not recorded in "Hortus Second". These notes are intended to call some of these changes and additions to the attention of horticulturists.

Agastache Clayton Ex Gronovius: A genus of about 20 species of perennial, mostly North American herbs (one species, A. rugosa Fischer & Meyer, native to northern China and Japan), several of which are sometimes cultivated. Leaves generally toothed, flowers 2-lipped, white to purple or red. Stamens 4, paired, exserted; anther sacs 2, parallel. Calyx tubular, mouth even or slightly 2-lipped, lobes equal to sub-equal. Inflorescence a more or less continuous, verticillate raceme. The name has four syllables, and is pronounced Ag-gas'-tack-ee.

The genus Agastache was proposed by Jan Fredrik Gronovius, M.D., a Senator of Leiden, in the second edition of his "Flora Virginica" (1762), based on a plant collected in Virginia (North America) by John Clayton, M.D. The genus (at that time with a single species) was based on a collection from the mountains, flowering in August. It is believed that Clayton's plant was that which we now know as A. scrophulariæfolia (Willdenow) Kuntze. Though he proposed the generic name, Gronovius did not give his plant a true Linnæan specific name. In 1800 Carl Ludwig Willdenow, working at Berlin, named a plant that was in cultivation in the Botanic Garden there Hyssopus scrophulariæfolius. We believe that these two men were dealing with the same plant. Thus, though the generic name dates from 1762, the type species, then, was not named till 1800. Finally, Carl Eduard Otto Kuntze published in 1891 a "Revisio Generum Plantarum" (revision of the genera of plants) in which he referred Willdenow's species to Gronovius' genus. At the same time, Kuntze added to the genus the Hyssopus nepetoides of Linnæus, the Stachys Foeniculum of Pursh, the Lophanthus rugosus of Fischer and Meyer, and the L. urticifolius of Bentham. These four species form a very natural group, and may be easily distinguished by the fact that the stamens are paired, the posterior, and longer, pair being thrust down and exserted from the corolla between the anterior, shorter, pair.

In 1896 John Briquet, of Geneva, Switzerland, in his treatment of the Labiatæ for the encyclopedic "Die Pflanzenfamilien" of Engler and Prantl, established a new genus, Brittonastrum, to accommodate six species from Mexico and the southwestern United States. This genus was to be distinguished from Agastache by the fact that the stamens do not cross, the corolla is generally not hairy within, and the mouth of the corolla tube is somewhat bilabiate.

In "Hortus Second," in conformity with the original treatments, these two genera were maintained as separate entities. However, in 1945 there appeared a revision of this group by Harold Lint and Carl Epling, of the University of California at Los Angeles, in which Brittonastrum was reduced to the status of a section of Agastache. In accordance with this treatment of the group, the following key accounts for the species of Agastache recorded as now being in cultivation.

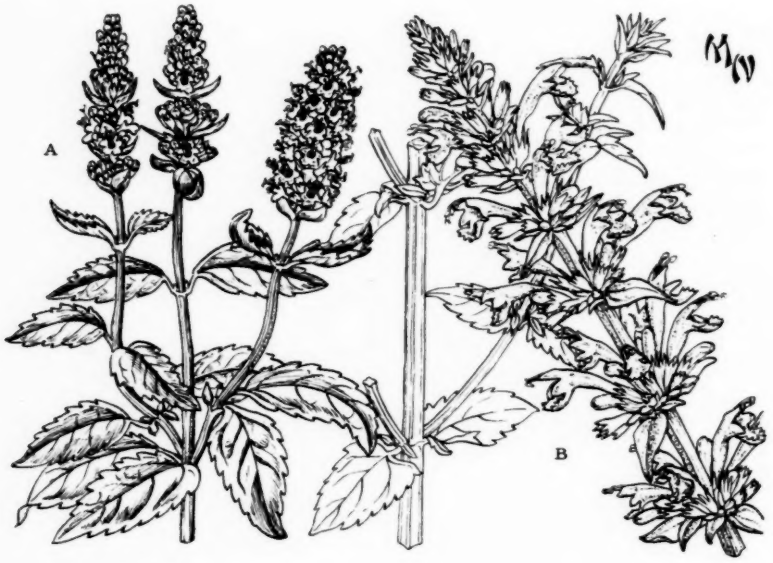

Fig. 57. A, Agastache Foeniculum (Sect. Chiastandra) x 1/2. B, Agastache cana (Sect. Brittonastrum) x 1/2. Adapted from "Curtis's Botanical Magazine."

1. Stamens 2 pairs, lower (anterior) pair ascending under the lip, the upper (posterior) pair thrust down and exserted between the lower pair. . . . . Section Chiastandra

2. Calyx teeth obtuse, infl. usually less than 2 cm. in diam., fls. yellowish. . . . . 1. A. nepetoides

2. Calyx teeth at least acute, infl. usually 2 cm. in diam. or more, fls. not yellowish.

3. Corolla 12-16 mm. long. . . . . 2. A. urticifolia

3. Corolla less than 8 mm. long.

4. Floral bracts lanceolate, inconspicuous. . . . . 3. A. rugosa

4. Floral bracts ovate, acute or acuminate, more or less conspicuous.

5. Lvs. and sts. essentially glabrous, whitish beneath. . . . . 4. A. Foeniculum

5. Lvs. and sts. generally conspicuously pubescent. . . . . 5. A. scrophulariæfolia

1. Stamens 2 pairs, parallel, both pairs exserted from the tube. . . . . Section Brittonastrum

6. Lvs. linear to linear-lanceolate, entire, to 5 cm. long, 6 mm. broad. . . . . 6. A. rupestris

6. Lvs. ovate or ovate-lanceolate, usually somewhat serrate.

7. Corolla tube less than 16 mm. long. . . . . 7. A. brevifolia

7. Corolla tube more than 18 mm. long.

8. Median lvs. of the st. mostly 5-5.6 cm. long, base generally cordate. . . . . 8. A. mexicana

8. Median lvs. of the st. mostly 3-3.7 cm. long, base generally cuneate. . . . . 9. A. cana

DEALERS WHO SPECIALIZE IN HOUSE PLANTS, and who offer catalogues devoted primarily to them, are relatively few in number. Those known to the Bailey Hortorium include the following. It would be appreciated if persons knowing of others would write and advise us accordingly.

Amazon Gardens, 2643 N.W. 22nd Court, Miami 42, Fla.
F. I. Carter & Sons, Route 38, Tewksbury, Mass.
Evans & Reeves, 255 S. Barrington Ave., West Los Angeles, Calif.
Fantastic Gardens, R. G. Wilson, Prop., 9550 S. W. 67th Ave., South Miami 43, Fla.
Rainbow Nursery, 1635 W. Florence Ave., Los Angeles 44, Calif.
Julius Roehrs Co., Rutherford, N. J. [The illustrated catalogue well worth the $1.00 fee].
Roy F. Wilcox & Co., Montebello, Calif.
Wilson Bros., Roachdale, Ind. [Specialists in Geraniums, or Pelargoniums, but also have other items].
Yoars House Plant Nursery, Bunker Hill, Ind.

The Peony Belongs in a Family by Itself

Few garden flowers of temperate regions are better known than the peony. Marco Polo saw it in China in the Thirteenth Century and later his compatriots, the Venetians, derided him and treated him as daft for telling them, when describing the peony, of having seen "roses" as large as cabbages.

The peony flower is large, with many petals and a multitude of stamens, and its seeds are produced in two to five leathery, capsule-like follicles that develop from as many pistils in the center. For these reasons botanists, for the last two centuries, have treated the peony as a member of the Buttercup family (Ranunculaceæ).

As early as 1908 the British botanist, W. C. Worsdell, challenged the correctness of this alliance, recommending that the genus be segregated and placed in a family by itself. Since then, additional studies have been made of the morphology, the internal anatomy, and the cytology of species in the genus, all adding new and increasing evidence that the peony is not related to the buttercups, anemones, and hellebores. In these taxa the outermost stamens develop first, with maturation progressing toward those nearest the center. In the peony, the innermost stamens develop first with maturation progressing towards the outermost ones. Characters of the peony seed, with its aril, also serve to separate it from the Ranunculaceæ. For these and other more technical reasons, students of the genus are now generally agreed that the peony differs so fundamentally from other genera as to represent a family by itself, the Paeoniaceæ. The relatives of the peony are now believed to be not the buttercups and their woody relatives, the magnolias, but more probably the tropical family known as the Dilleniaceæ. It is to be expected that this recognition of the Paeoniaceæ will be accepted in "Hortus III."

G. H. M. Lawrence

The Directory of American Horticulture has been published by the American Horticultural Council. It is a 108-page book providing information on every national horticultural organization of the United States and Canada - amateur, commercial, trade, and professional. In addition it provides names and addresses of heads of departments of horticulture, botanical gardens, arboretums, and garden centers of North America.

It is available from the Directory Editorial Office, 1 East 57th Street, New York 22, N. Y. Price, $1.00 postpaid.

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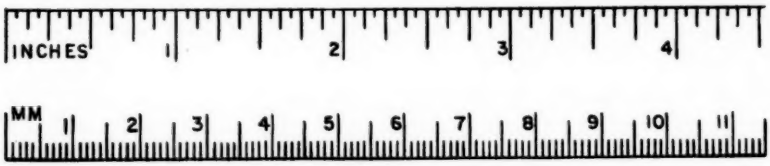
ABBREVIATIONS USED IN BAILEYA

[Excluding abbreviations of author's names following binomials etc.]

ann.	annual	dm.	decimeter	lf.	leaf
bien.	biennial	fl.	flower	lft.	leaflet
br.	branch	fls.	flowers	lvs.	leaves
brt.	branchlet	flt.	floret	mm.	millimeter
caps.	capsule	fr.	fruit	per.	perennial
cl.	clone	ft.	foot	segm.	segment
cm.	centimeter	hort.	horticultural	st.	stem
cv.	cultivar	in.	inch	sts.	stems
diam.	diameter	infl.	inflorescence	var.	variety

METRIC - ENGLISH EQUIVALENTS (approximate)

6 mm. - 1/4 in.	10 cm. - 4 in.	10 mm. - 1 cm.
12 mm. - 1/2 in.	1 dm. - 4 in.	10 cm. - 1 dm.
25 mm. - 1 in.	3 dm. - 1 ft.	10 dm. - 1 meter
2.5 cm. - 1 in.	10 dm. - 1 yd.	
5 cm. - 2 in.	1 m. - 39 in.